bio-protocol Preprint

Not Peer Reviewed
Ask a question online

DNAgel synthesis

ZX Ze Xiong JH John S Ho

Updated date: Dec 1, 2021

An abbreviated version of this protocol was published in Science Advances in Nov 2021

A wireless and battery-free wound infection sensor based on DNA hydrogel

DOI: 10.1126/sciadv.abj1617

Detailed protocol

Dissolve 20 mg deoxyribonucleic acid sodium salt (smDNA, Aldrich) in filter-sterilized (0.22 μm filter) 4.0 mM NaBr solution to get 10 wt% precursor at room temperature. The smDNA may take 24 hours to be fullly dissolved.
Carefully mix 2.5 wt% poly(ethylene glycol) diglycidyl ether (PEGDE, Mn = 500, Aldrich) with the precursor.
Carefully mix 0.5 wt% *N*,*N*,*N*′,*N*′-Tetramethylethylenediamine (TMEDA, Aldrich) with the precursor.
Centrifuge the precursor to remove extra air bubbles.
Take appropriate amount of precursor by pipette tip and apply it on target interface.
Put the functionalized interface and a sterilized gauze soaked with DI water in a plastic petri dish.
Carefully seal the petri dish by parafilm.
Put the petri dish in a chamber with controlled temperature (27 °C) and humidity (90%).
Wait for 48 hours and take out the functionalized interface.
Use DI water to rinse the DNA hydrogel to remove unreacted chemicals.

How to cite:（Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used）

1. Xiong, Z. and Ho, J. S.(2021). DNAgel synthesis. Bio-protocol Preprint. bio-protocol.org/prep1459.
2. Xiong, Z., Achavananthadith, S., Lian, S., Madden, L. E., Ong, Z. X., Chua, W., Kalidasan, V., Li, Z., Liu, Z., Singh, P., Yang, H., Heussler, S. P., Kalaiselvi, S. M. P., Breese, M. B. H., Yao, H., Gao, Y., Sanmugam, K., Tee, B. C. K., Chen, P., Loke, W., Lim, C. T., Chiang, G. S. H., Tan, B. Y., Li, H., Becker, D. L. and Ho, J. S.(2021). A wireless and battery-free wound infection sensor based on DNA hydrogel. Science Advances 7(47). DOI: 10.1126/sciadv.abj1617

Copyright: Content may be subjected to copyright.